User Guide

VirusBuster 2005 for Mail Servers

For Linux/FreeBSD/OpenBSD

VirusBuster

www.virusbuster.hu

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VIRUSBUSTER 2005 FOR MAIL SERVERS

The VirusBuster 2005 for Mail Servers package (hereinafter called VBMSRV protection) provides Sendmail and Qmail mail servers with virus and spam protection. The solution integrating to the mail server scans all the mails to be delivered and their attachments and ensures comprehensive protection against viruses, malicious codes and unsolicited mails.

Our product integrates the Commtouch's pre-emptive virus (Zero Hour Virus Protection /ZH filter/ and spam (Extended Spam Protection /ESP filter/) protection module based on the innovative RPD technology, which - as a signature-less solution - provides enhanced detection.

Important!
Only the Zero Hour Virus Protection module (pre-emptive virus filer) is available in the standard package. You need to have an extra registration key to enable the ESP (pre-emptive spam filter) module as well. Please contact our Sales department at the sales@virus-buster.com e-mail address to order!

Main features:

- Filter modules
* Virus filter: effective virus recognition based on the outstanding virus scan engine
* File filter: actions could be assigned to specified file formats
* Spam filter: statistical spam filtering with many evaluation methods
* Address filter – It is possible to set Black/White lists
* Result filter - summarized result, all results of other filters could be used in the result filter
- Flexible rule system: ability to use parameters for the actions to be performed
- Heuristic virus analysis to recognize unknown viruses
- Advanced WormBuster function - for blocking I-Worms instantly
- Filtering encrypted archives
- Comprehensive statistical information about mail traffic and events
- Automatic database updates
- Log daemon - logging to several output types: file, syslog, standard output

Spam filter:

The anti-virus system’s spam filter operates based on statistical scan methods and has numerous leading evaluation techniques to provide effective protection against unsolicited mails.

- Recognizing based on statistical scan methods completed with other evaluation techniques
- Heuristics filtering
- HTML filtering
- UNICODE text handling
- Low false positives and high spam recognition rate
- Filter sensitivity: 3 level of spam filtering
- Frequently updated spam database

Pre-emptive virus and spam protection:

ZH and ESP modules based on the RPD technology don't need a virus or spam database to detect malwares delivered by e-mail, but they detect the attacking/spreading wave itself connecting and communicating permanently to a central server. The server

analyzes e-mail traffic of the Internet, based on comprehensive information collected from numerous locations of the world. The filter ranks the mails according to the server information so it can reveal the attacks or spam mails some minutes after they have been started and block these e-mails long before the first virus or spam database updates are released which can take several hours sometimes.

- It is effective in the early phase of attacks: protects in a few minutes after the attack has started. Releases of virus or spam database updates for traditional virus/spam scan engines can take several hours.
- Pre-emptive defense: blocks known and unknown malwares, spams by detecting attack waves.
- Outstanding detection rate: detects 95 percent of spam mails or e-mails that contains malware in itself, without using any other "traditional" virus or spam protection methods.
- Fully automatic: no maintenance needed

Minimal system requirements

OPERATING SYSTEM	Linux GLIBC 2.2.5 kernel2.2.1	FreeBSD V 4.9 V 5.3	OpenBSD V 3.4
PROCESSOR	Intel Pentium (or compatible) at 300MHz		
MEMORY	128M		
HARD DISK	32M		
OTHER	wget (for update), perl5 (for installation)		

Our product supports the Qmail mailserver from version 1.03!
Our product supports the Sendmail mailserver from version 8.12!

Minimum required Linux distributions

SuSE 8.0
RedHat 7.3
Debian 3.0 (woody)
Mandrake 9.0
Slackware 8.1

Additional system components needed for the ZH and ESP filters

ZH and ESP filter functions are only available on Linux and FreeBSD 4.9 systems. The following additional system requirements have to be installed on your computer to utilize their features:

Linux:
- Standard C Library 2.3 (glibc 2.3)
- C++ Runtime Library 3.2 (libstdc++.so.5)

FreeBSD 4.9:
- Standard C Library (libc.so.4)
- C++ Runtime Library (libstdc++.so.5)

General information

Package naming

The VirusBuster 2005 for Mail Servers package is named according to the following parameters:

vbmsrv-<version>-<os>-<architecture>-<minimal libc version>.tgz

<version>: The package's version number. For example: 1.0.1
<os>: The package is working on the displayed system. For example: Linux
<architecture>: The processor type. For example: i386
<minimal libc version>: The required minimal version of the libc library. For example: libc6

Installation

You can start the installation by executing the 'vbmsrv-install.pl' program. After executing the following questions should be answered for the successful installation.

Value displayed between square brackets is default answers for the current question, you can simply use the <enter> button to accept it. It is recommended to use these default values.

One of the first steps is to specify the mail server you want to be protected!
#Please select the mail server you want to be protected!
#(S)endmail or (Q)mail
#[s]

Set the 'run-as-group' option's value. Please see the configuration specification for more information!
#In which group do you want to run VirusBuster for Mail Servers?
#[vbuster]

Set the 'run-as-user' option's value. Please see the configuration specification for more information!
#With which user permission do you want to run VirusBuster for Mail Servers?
#[vbuster]

You should specify the location of the binary file in the system:
#In which directory do you want to install the binary files?
#[/usr/sbin]

Define the path of the library files needed for the program:
#In which directory do you want to install the library files?
#[/usr/lib]

Target path of the database files:
#In which directory do you want to install the database (virus, spam) files?
#[/var/lib/vbuster]

Specify the location of the text type documentation files:
#In which directory do you want to install the documentation files?
#[/usr/share/doc]

Location for the documentation in man page format:
#In which directory do you want to install the manual files?
#[/usr/share/man]

```
The program creates communication and other files needed during its operation:
#Which directory do you want to be the run directory?
#[/var/run/vbuster]

Name the directory of the log file:
Specify the log directory name
[/var/log/vbuster]

Set the directory storing the initialization scripts:
#What is the directory that contains the init scripts?
#[/etc/init.d]

Define path for the initialization directories:
#What is the directory that contains the init directories (rc0.d -
#rc6.d)?
#[/etc]

If the program detects that a previous version of its configuration file is available
in the system, it will offer the following selection:
#Found an existing config file (/etc/vbuster/vbmsrv.conf).
#(K)eep the existing file or (C)reate a new one?
#[k]

Specify name for the log file:
#Specify the log file name
#[vbmsrv.log]

Mails sent from the IP address you enter will be filtered:
#Which IP address do you want to filter?
#You should use the standard address/length format (example:
#194.222.242.0/24)
#[0.0.0.0/0]

Please enter your user name:
#Enter your registration user name
#[]

Please enter your registration key:
#Enter your registration key (example: WESAE-WCRVC-CSNEH)
#[]

The following lines are shown in case of successful installation:
Installing files...  Done.
Installing config file...
Installing init scripts...  Done.
```

Uninstallation

```
Please run the following program file to uninstall the package:
vbmsrv-uninstall.pl
```

Binary files

The following executable files and their parameters are found in the package. These files are placed in the /usr/sbin directory by default:

vbmsrv [options]
MailScan main daemon program.

```
Options:
-n, --nodaemon     execute in no daemon mode
-v, --version      displays the version of vbmsrv and exits
-c, --config=FILE  reads configuration from FILE (path needed)
-l  --license      returns registration data
```

vbmlog [options]

```
Log that responsible for controlling log messages.
Options:
-n, --nodaemon     execute in no daemon mode
-v, --version      displays the version of vbmlog and exits
-c, --config=FILE  reads configuration from FILE (path needed)
```

vbmsrvctl start|stop|restart|cfgreload|dbreload|logrotate|statistic

```
Control file, you can realize the following functions by using the available
parameters:
start: Starts the vbmlog and vbmsrv files.
stop: Stops the vbmlog and vbmsrv files.
restart: Stops and starts the vbmlog and vbmsrv files.
cfgreload: Reloads the [Milter] section's settings of the vbmsrv configuration file
and vbmlog's configuration file and applies the new settings.
dbreload: Reloads the virus and spam database.
logrotate: Locks the current log file then opens a new one. This function is useful
for archiver programs.
statistic: Displays the statistics and exits.
```

vbmstat [options]

```
Statistics screen about anti-virus system's operation.
Options:
-v, --version         displays the version number
-a, --address=ADDRESS statserver's address (e.g. ip:host:port or
unix:path)
```

vbasapd

```
Establishes the connection to the Commtouch's server, provides ZH and ESP functions.
Start and stop parameters of the vbmsrvctl file also affect this daemon.
```

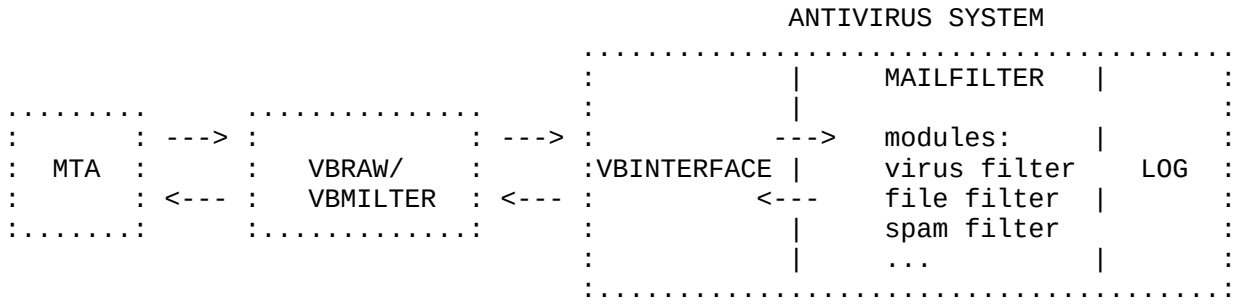
Registration

```
Standard package
----------------
The standard package allows you to use the ZH filter module, too.
The product can't be used without a valid registration key.
The program warns the user by sending a message into the log filer once a day when
the ending of the registration period is coming.
After registration key had expired, the product works as before (without any
restriction) until a program update (virus database updating is possible). After
program updating, you need a new license (registration key) to use the program.

The registration key must be placed into the anti-virus system's configuration file
(serialno option) together with the user name (username option). See the description
of the configuration settings for more.

Activate ESP function
---------------------
You have to enter the registration key to the 'asap-license-key' option which enables
the ESP filter as well. Contact us at the sales@virus-buster.com e-mail address to
order the key.
```

Operation

The anti virus system has modular structure, it consists of a central unit (MAILFILTER) and other modules (filters) and daemons connecting to the main unit.

The VBRAW (Qmail) or VBMILTER (Sendmail) interface realizes the communication between the MTA and the anti virus application and cuts the mail into pieces to make it suitable for further processing. Then the VBINTERFACE module forwards the pieces of the mail to the real filter module (MAILFILTER) The MAILFILTER performs the scanning on the pieces or the attachments according to the selected filter modules.



The MTA is reported on the filter result through the VBINTERFACE and VBRAW. If the mail is not infected, the mail server is allowed to send it to the recipient(s). If the mail is infected or suspicious, the filter performs their actions on the mail set in the configuration file (kill virus, delete file, etc.).

The LOG daemon tracks and stores the messages created by the system. Browsing this messages you can get information about the operation and the reason of the errors if they are found.

The modules used by the MAILFILTER could be divided into two groups:

First-level modules /filters/ (Level1)

The whole mail is given to the level1 filters. The module returns a string after processing as a result of the filtering. You can assign command(s) to the returned value. These commands either have an effect on the mail processing or modify the mail.

Level1 modules (filters):
- address filter, it searches for the sender or the recipients in the specified list (libflt_addr.so)
- global module, you can set actions which will be performed on each mail processed (libflt_global.so)
- result filter, summarized result, all results of other filters could be used in the result filter
- ZH/ESP filter (libflt_asap.so)
- module which handles the level2 modules /filters/ (libflt_level2.so)

Second-level modules /filters/ (Level2)

Only certain parts of the mail are given to the level2 filters. These filters don’t need to get the whole mail, only the part which they are working on. These (level2) filters are handled by the libflt_level2.so level1 filter, it ensures the required mail-part to the filters modules. The level2 filters also return a string value after processing the MIME-part, you can assign command(s) to the returned value.

```
Level2 modules (filters):
- virus filter (libflt2_virus.so)
- file filter (libflt2_fileflt.so)
- spam filter (libflt2_bayes.so)
```

Database update

You can update the virus- and spam database used by the program with the help of updates scripts found in the package or manually.

Manual update

The virus database file (vbuster8.vdb) can be downloaded from our FTP server:
ftp.virusbuster.hu/pub2005/vbuster/vdb.8/vbuster8.vdb
You should copy the downloaded file into the /var/lib/vbuster directory (if you use the default path) as vbuster8.vdb. You can activate the new database by the "vbmsrvctl dbreload" command.

The spam database file (vbuster.sdb) is also available on our FTP server in compressed format:
ftp.virusbuster.hu/pub2005/vbuster/tgzs/vbuster.tgz
The downloaded file must be copied into the /var/lib/vbuster directory as vbuster.sdb (if you use the default path). The compressed file should uncompress before copying. Activate typing the "vbmsrvctl dbreload" command.

Automatic update

We have created scripts to automate the update process, they are in the /usr/sbin/ directory (vbm_dbupdate.sh and vbm_dbupdate_http.sh).

Execute one of them, it is going to download the virus- and/or spam database, copies it/them into the correct directory and activates it/them. The download and update processes will only be performed, if the database available in the server is newer than one on your computer. Otherwise the database will be left unchanged.

To execute the scripts, you should enter the vbm_dbupdate.sh (through HTTP use the vbm_dbupdate_http.sh) command. It is possible to use parameters, too:

```
nosdb   - the spam database will not be updated
verbose - display progress bar
```

Example:

```
vbm_dbupdate.sh nosdb verbose
```

The spam database will not be updated, the progress bar will be displayed.

To run these scripts, you need wget program! By the help of cron, you can schedule the script executing to be performed by half an hour. Register into /etc/crontab:

```
0,30 * * * * root /usr/sbin/vbm_dbupdate.sh
```

The configuration file

General information

Assign to mail sever

```
To activate anti-virus system you need to perform the following steps beside the
configuration settings:

Using Sendmail
--------------
The VBMSRV protection must be assigned to the Sendmail so that the mail server and
the filter program can communicate to each other. You have to edit the Sendmail's
configuration macro file then rebuild it to get the new configuration file.

Please insert one of the following versions into the sendmail.mc file (the name of
the Sendmail's macro file may be different on different systems)!

Version A:
This entry consists of 2 lines!
First:
MAIL_FILTER(`vbmilter', `S=unix:/var/run/vbuster/vbmilter,F=T, T=S:4m;R:4m')dnl
Second:
define(`confINPUT_MAIL_FILTERS',`vbmilter')dnl

Version B:
This entry consists of 1 line:
INPUT_MAIL_FILTER(`vbmilter', `S=unix:/var/run/vbuster/vbmilter,F=T,T=S:4m;R:4m')dnl

Please take care of exact copying!

Using Qmail
-----------
1. Rename the original "qmail-queue" to "qmail-queue2" (this is the value of
"original_qmail_queue" option found in the configuration file)

2. Copy the "qmail-queue" found in the package's "qmail" directory to the Qmail's
binary directory (default path: /var/qmail/bin)

3. Reset the owner of the "qmail-queue" which had been copied in the previous step to
qmailq and its group to qmail with the following commands:
chown qmailq /var/qmail/bin/qmail-queue
chgrp qmail /var/qmail/bin/qmail-queue
```

Structure of the configuration file

The configuration file stores the settings in hierarchical structure. The storing mechanism based on encapsulation concept which means that user has to specify the storing path (section) for each coherent setting group step by step.

The path (section) must be specified between square brackets in the configuration file:

```
[Milter/Global]
```

Enter comments by using semicolon (;) before the comment text. The characters entered after semicolon will not be interpreted by the parser. You can also use this function to disable a selected option quickly.

```
;command2="copy_mail ('/tmp')"
```

In the whole configuration file, if you have to specify network address as a value of an option you can use the following address forms:

```
{unix|local}:/path/to/file
inet:port@{hostname|ip-address}
Example:
unix:/var/run/vbuster/vbmsrv
ip:192.168.2.42:9009
ip:somebody.com:9427
```

Filter definitions

```
[Milter/FilterRules/Rule/Filter]
; level1 filter settings (1)...
[Milter/FilterRules/Rule/Filter/Action]
; level1 action settings (1)...

[Milter/FilterRules/Rule/Filter]
; level2 general filter settings (2)...
[Milter/Filterrules/Rule/Filter/Level2]
; level2 filter settings (2)...
[Milter/FilterRules/Rule/Filter/Level2/Action]
; level2 action settings (2)...

...
[Milter/FilterRules/Rule/Filter]
; filter settings (n)...
[Milter/FilterRules/Rule/Filter/Action]
; action settings (n)...
```

Filter settings belonging to a rule must be defined below the rule definition line in the [Milter/Filterrules/Rule/Filter] section. Each new filter definition must be placed into a new [Milter/Filterrules/Rule/Filter] section. After the filter has checked the mail it returns a value to inform you (and the program) about the result of filtering. Based on the returned values different action may be performed on the current mail. You can specify the required actions and result types in the [Milter/Filterrules/Rule/Filter/Action] section in case of level1 filter settings.

The level2 filters are controlled by a special level1 filter, called: libflt_level2. If you would like to configure a level2 filter, first you have to specify the control filter (libflt_level2) and set its general settings in the [Milter/FilterRules/Rule/Filter] section. After defining general settings, you have to select and set the requested level2 filter in the [Milter/Filterrules/Rule/Filter/Level2] section. The actions (based on the filter result) may be specified in the following section: [Milter/FilterRules/Rule/Filter/Level2/Action]

GENERAL FILTER OPTIONS

disable = <0|1>
Disable or enable filter. Possible values: 0 or 1.
1: Filter is disabled its settings will not be performed.
0: Filter is active.

filter = <filter type>
Specify filter type.
The available values (module's level):
libflt_addr – address filter (level1)
libflt_asap – ZH/ESP filter (level1)
libflt_level2 – level2 module manager (level1)
libflt_result – result filter (level1)
libflt2_virus – virus filter module (level2)
libflt2_fileflt – file filter module (level2)
libflt2_bayes - spam filter module (level2)

In case of level2 filter:

filter2path = <path>
Level2 filter modules' directory specification. The location where the level2 modules could be found.

max_mime_depth = <number>
The program will scan the embedded e-mail-type mimes down to the specified depth. If you specify the 0 as value of the option, the program will scan neither of the e-mail-type mimes.
Important!
E-mail-type mimes embedded deeper into the mail than the value of this option will not be scanned so possible viruses, spams, attachments found in that deeper levels will get into your system.

Action specification

```
[Milter/FilterRules/Rule/Filter]
filter_option_1
filter_option_2
...
filter_option_n

    [Milter/FilterRules/Rule/Filter/Action] ; action (1)
    result=
    count=
    command=

    [Milter/FilterRules/Rule/Filter/Action] ; action (2)
    result=
    count=
    command=
    command2=
    command3=
    ...
------------------------------------------------------------
```

The filter module returns the result of the filtering after it has scanned the received mail or attachment. Those actions will be performed which has the same 'result' value specified as that the filter has returned with. You can use regular expression as the value of the 'result' option, this time you must insert the value between quotes (""). It is also possible to use tokens in the 'command' option.

Note!
Specify level1 actions in the [Milter/FilterRules/Rule/Filter/Action], and level2 actions in the [Milter/FilterRules/Rule/Filter/Level2/Action] section.

Action settings

result = <result value>
You can specify a result value to the filter module. If the filter module returns the same value as you specified, the 'command' options of the section will be performed. The result values may be different by filter modules, these are described in the chapter of the module descriptions. The value of the result option could also be defined by regular expression (between quotes ("").

count = <number>
This value specifies that how many times will the commands be performed during the mail processing (0 means at all times). If the 'count' option is not specified to the action, the command will be always performed.

command = <command>
Define actions. The possible commands and their functions is detailed in the "Module commands" chapter. You must insert the commands' value between quotes (""), the parameters between apostrophes (''), separated by comma (,). If you would like to use the apostrophe (') character in the parameters, then use the backslash (\) character right before it.
For example:
command="header_modify ('Subject', '%subject% \'Scanned e-mail\'')"

Specify several parameters of the same name:
If you would like to specify several parameters of the same name, then you have to number them from the second one (where the number: 2..N).
For example:
[Milter/Filterrules/Rule/Filter/Action]

```
command=
command2=
command3=
```

The daemons of the package have different configuration files which will be detailed below.

VBMSRV daemon configuration file (vbmsrv.conf)

General settings

```
[General]
logaddress=unix:/var/run/vbuster/vbmlog
address=unix:/var/run/vbuster/vbmsrv
socket_permission=0660
run-as-user=user
run-as-group=group
pid_file=/var/run/vbuster/vbmsrv.pid
process_num=0
module=
-----------------------------------------
```

The settings:

logaddress=<netcmd address>
You have to specify the communication address of the log component.
Default: logaddress=unix:/var/run/vbuster/vbmlog

address=<socket>
Specify address trough which the MTA and the anti-virus application will communicate. The same setting must be specified in the MTA's configuration Default:
address=unix:/var/run/vbuster/vbmsrv

socket_permission=<octal number>
Set unix socket permission with an octal number. Default: 0660 (in case of Qmail), 0600 (in case of Sendmail).

run-as-user=user
run-as-group=group
VBMLOG daemon starts with root permission as all the daemon programs usually at the computer startup. However, it is more secure to run with unprivileged user permission. If the VBMLOG is started with root permission, it is able to change to the user and group specified in these options.
If the VBMLOG is not started with root permission, it will not be able to change to other user permissions.

pid_file=/var/run/vbuster/vbmsrv**.pid**
Pid file with path of the anti-virus application.

process_num = <processor number>
It is recommended to use this option if the following system components are available: FreeBSD 4.x, multi-processor system, SMP kernel
The kernel is only able to assign the processes to the CPUs existed on FreeBSD 4.x in multi-process environment (the anti-virus protection is thread-based so it will always be run by only one processor). In this option you can specify the number of the anti-virus protection instances to be run, these will be processed by the processors separately. A built-in load-balancing system is responsible for the equal load, it will assign the Sedmail connects to the instances of the anti-virus protection.
Operation:
It creates sockets according to the 'process_num' value:
unix:/var/run/vbuster/vbmsrv ->
unix:/var/run/vbuster/vbmsrv.0
unix:/var/run/vbuster/vbmsrv.1
...
unix:/var/run/vbuster/vbmsrv.n

or

```
inet:3333@localhost ->
inet:3334@localhost
inet:3335@localhost
inet:3336@localhost
inet:3337@localhost

module=
Specify the mail server interface module that makes the connection possible between
the selected mail server and the anti-virus system.
libvbraw.so – using Qmail MTA
libvbmilter.so – using Sendmail
```

Sendmail setting

```
[General/Milter]
Milter_timeout = 300
----------------------------------------
Set the following option if you are using Sendmail:

milter_timeout = <second>
Sets the number of seconds until libmilter is waiting for an MTA connection before
timing out a socket.
```

Qmail settings

```
[General/Qmail]
original_qmail_queue=/var/qmail/bin/qmail_queue2
accept_mail_retval=0
drop_mail_retval=0
reject_mail_retval=31
-----------------------------------------
```

Set the following options if you are using Qmail:

original_qmail_queue=<path>
Path of the original qmail-queue which will be called by the our own qmail-queue (VBRAW's client) to deliver the mail finally.

accept_mail_retval=<number>
drop_mail_retval=<number>
reject_mail_retval=<number>
Set the return value of the anti-virus system returned to the Qmail module if one of the above incidents (accept mail, drop mail, reject mail) have been detected. Based on these results you can control the Qmail's return value returned to the mailer client. For more information read the Qmail's own manual (man) ('qmail-queue').

Log settings

```
[Logging]
logscreen=0
---------------
The setting:

logscreen=<0|1>
Log to screen.
1: The log messages came from the filter modules will be displayed on the screen.
This function could be used in non-daemon mode.
0: Inactive.
```

General settings of the virus scan engine

```
[Engine]
max_decompress_size=0
max_decompress_ratio=0
max_decompress_depth=5
vdb_file=/var/lib/vbuster/vbuster8.vdb
-------------------------------------
```

Specify the general setting of the scan engine in the [Engine] section.

max_decompress_size=0
If this file size limit is exceeded while uncompress an archive, the program stops the uncompression and scanning of the file and returns the 'archive_exploit' result. (Option's value is in MByte).
Specifying the 0 value means using the virus scan engine's default value for this option.

max_decompress_ratio=0
If the size of the decompressed file is 50 times (or more) greater than the compressed file's, the program will return the 'archive_exploit' result.
Specifying the 0 value means using the virus scan engine's default value for this option.
Other explanation (option's value in percent): 1/n*100, where n is the value.
For example the value is 50. 1/50*100 = 2% so if the compression ratio is better than 2% the program will return the 'archive_exploit' result.

max_decompress_depth=5
The program will scan the multi-level archives down to the specified depth. If the program finds more depth levels, it will return the 'archive_depth_limit' result and files that are deeper than the specified level will not be scanned.

vdb_file = <file name with path>
The virus database file's name and location in the system.

General settings of the spam scan engine

```
[Bayes]
bayes_sdb=/var/lib/vbuster/vbuster.sdb
--------------------------------------
Specify the general setting of the spam scan engine in the [Bayes] section.
```

bayes_sdb = <File name with path>
The spam database file’s name and location in the system.

ZH/ESP general settings (Asap daemon)

```
[Asap]
asapd_path       = /usr/sbin/vbasapd
proxy            =
proxy-auth       =
proxy-domain     =
max-connection   = 128
pid-file         = /var/tmp/asapd.pid
cache-size       = 4000
do-detect        = yes
listen           = 127.0.0.1:9999
asap-license-key = xxxxxxxxxxxxxxxxxxx
```

The following options are available to set the ZH/ESP filter below the [Asap] label:

asapd_path = /user/sbin/vbasapd
vbasapd binary path. The Watchdog controls this daemon so it needs to know where the daemon can be found.

proxy = <host:port>
Set proxy server, if the sever running vbasapd is not able to connect directly to the Commtouch's server. You can also set user name and password as follows:
[username[:password]@]host[:port]
Default value: none

proxy-auth
Proxy authentication mode: Basic, NTLM or NoAuth
Default value: NoAuth

proxy-domain
Domain name used by the proxy server.
Default value: none

max-connection = 128
Maximum number of queries.
Default value: 128

pid-file = /var/run/vbuster/vbasapd.pid
vbasapd pid file with path.
Default value: /var/run/vbuster/vbasapd.pid

cache-size = 10000
Maximum number of queries stored in the vbasapd daemon's cache.
Default value: 10000

do-detect = yes
Whether the Commtouch server updates its database with unknown mails or not?
If this function active, those mails that are unknown for the server will be followed by the system. If the unknown mail type is reported from many different locations, it may be marked as bulk mail in the database.

listen = 127.0.0.1:9999
The vbasapd daemon's IP address. VBMSRV uses this IP to communicate with the daemon.
Default value: 127.0.0.1:9999

asap-license-key = xxxxxxxxxxxxxxxxxxx
Registration key needed for the ZH/ESP filter operation. The product contains a registration key by default which enables the ZH filter.

Global settings

```
[Milter]
[Milter/Global]
username=user_name
serialno=xxxxx-xxxxx-xxxxx
filters=/usr/lib/vbmsrv/
acceptnomatch=1
cfg-watch-timer=120
stataddr=unix:/var/run/vbuster/vbmstat
max-connections=100
--------------------------------
```

You can find the MAILFILTER daemon settings in the [Milter] section. Inside this section the general settings are in the [Milter/Global] section.

username = <user name>
Specifying the user name based on your license.

serialno = <registration key>
Specifying the registration key in the following form: XXXXX-XXXXX-XXXXX

Note!
You are not allowed to use the program without (valid) registration data!

filters = <path>
Level1 filter modules' directory specification. The location where the level1 modules could be found.

acceptnomatch = <number>
How the program handles the mails which not matching the rules?
0: Refuses them.
1: Accepts them, but it does not perform filtering them, mails will be forwarded without checking.

cfg-watch-timer = <second>
The cfg-watch-timer field sets the intervals at which the program should check if the configuration file has been modified. If so the file will be reloaded.

stataddr=unix:/var/run/vbuster/vbmstat
The statistical server communicates through the specified address.
Default: stataddr=unix:/var/run/vbuster/vbmstat

max-connections=100
Client connection limit. Maximum number of the clients that will be allowed to connect to the anti-virus system. If this limit is reached 4xx error message (temporary unavailable) will be returned to the MTA in case of every further attempt.

Rule definition

```
[Milter/Filterrules]
[Milter/Filterrules/Rule]
sourcemask=194.222.242.0/24
--------------------------------
```

Specify a rule, the filter modules defined for this rule will be applied to the mails matching this rule. Define the rule in the [Milter/Filterrules/Rule] section inside the [Milter/Filterrules] section.

sourcemask = <domain>

Filter modules defined after the sourcemask option will be applied to the mails sent from the specified domain. These filter modules belong to this rule. If you insert a new sourcemask option (with the required section specifications) the filter modules defined after the new sourcemask option will be applied the mails matching the new rule (sourcemask).

Address filter /White/Black list/ (level1)

```
[Milter/Filterrules/Rule/Filter]

disable=0
filter=libflt_addr

[Milter/Filterrules/Rule/Filter/Address]
sender=1
entry=*@domain.com
external_file=/etc/vbuster/wlistaddr.txt

[Milter/Filterrules/Rule/Filter/Action]
result=all_rcptto_listed
command="accept_mail"
-----------------------------------------------
This module filters the sender or recipient(s) of the mail based on the specified
address(es).

Functioning:
- if all the recipients or the sender of the mail (according to the setting) are/is
included in the address list then the action specified will be applied on the mail
(in case of mailfrom_listed or all_rcptto_listed results)
- if there is at least one of all the recipients or the sender of the mail (according
to the setting) who are/is not included in the address list and the mail would be
blocked for this, the mail will be delivered without modification for those
recipient(s) who are included in the address list. In this case even those actions
will not be applied which would not modify the mail. (eg. copy mail)
- if there is at least one of all the recipients who is not included in the address
list but the mail would not be blocked for this, the mail will be delivered to all
the recipients with possible modifications which were set in the 'command' options.

sender=[0|1]
0: the module will filter the recipient addresses
1: it will filter the sender address

entry=[address(es)]
Enter adrress(es) to be filtered. Use comma (,) character to enumerate
a number of addresses. You can use the * joker character in the localpar of the
addresses. Example: *@domain.com, aaa@bbb.ccc

external_file=[file name with path]
Addresses to be filtered could be stored in an external file, too. You can specify
the filename with its path in this option. The addresses will be read by lines from
the file. If a semicolon (;) is placed at the beginning of the line, that line will
be considered as comment.
Example for external file content:
*@domain.com
a@b.com
;d@e.com
```

Returned results, actions

```
Available return values of the address filter module:

mailfrom_listed: the sender is included in the list
all_rcptto_listed: all the recipients/sender are included in the list
rcptto_listed: there is at least one recipient/sender who is not included in the list

These values are available to use as the value of the 'result' option.
```

Commands could be used in the 'command' option are detailed in the "Module commands" chapter.

In the example

According to the result of the filter (resutlt=all_rcptto_listed) all the recipients are included in the address list so the mail will be accepted (command="accept_mail").

Global module settings (level1)

```
[Milter/Filterrules/Rule/Filter]

disable=0
filter=libflt_global

[Milter/Filterrules/Rule/Filter/Action]
result=true
command="add_header('X-VBMSRV', 'Scanned by VBMSRV')"
-------------------------------------------------
```

In this module you can set actions which will be performed on each mail processed. Set the global filter module for the ’filter’ option (libflt_global).

Actions

This module returns ’true’ value without exceptions. Commands could be used in the 'command' option are detailed in the "Module commands" chapter.

In this instance, the selected ’command’ will mark the processed mail. The ’add_header’ option adds a new field and its content to the mail header.

Result filter module settings (level1)

```
[Milter/Filterrules/Rule/Filter]
disable=0
filter=libflt_result

[Milter/Filterrules/Rule/Filter/Action]
result=l2bayes_true.*l2virus_infected
command="drop_mail"

[Milter/Filterrules/Rule/Filter/Action]
result=addr_mailfrom_listed.*l2bayes_true
command="set_rcpt_to ('admin@domain.com')"
-----------------------------------------------------
```

All results of other filters (virus, spam, ...) specified in the configuration file before the Result filter are available in this special filter. You can connect filters by assigning actions based on their result combinations specified in the Result filter.
So the Result filter provides in a string (result string) all the filters' results which have been performed before the Result filter. With the help of regular expressions you can compare various conditions with the result string and assign actions to the mail if there is a correspondence.

Actions as reject_mail, drop_mail or accept_mail specified before the Result filter can block the activation of the Result filter because these ones break the mail process so the Result filter can not be activated. Keep this in mind when composing the configuration file and the actions.
Other possibility is not to assign actions to the filters specified before the Result filter but set them in the Result filter getting their results from the result string.

Because the results can be the same even if they are resulted by two different filters (e.g. true), these values must be distinguished from each other. Use the following prefixes at the beginning of the result separated by an underline:

Address filter: addr
spam filter: l2bayes
file filter: l2fileflt
virus filter: l2virus
global filter: global
zh/esp filter: asap

In the examaple

1.
Reject infected and simultaneously spam mails:
virus filter result: infected
spam filter result: true

Use this mask if the spam filter is placed before the virus filter:
result=l2bayes_true.*l2virus_infected
command="drop_mail"

2.
Forward spam mails to the administrator that come from a specified sender:
spam filter result: true
address filter result: mailfrom_listed

Use this mask if the address filter is placed before the spam filter:

```
result=addr_mailfrom_listed.*l2bayes_true
command="set_rcpt_to ('admin@domain.com')"
```

Important!
For correct operation, place the filters' results into the result mask in the same order as the filters are specified in the configuration file. Also keep the order of values inside a filter: first use the incident level (e.g. l2bayes_high_level_spam) then the incident flag (l2bayes_true).

Virus filter module settings (level2)

```
; ---- level2 filter module initialization
[Milter/Filterrules/Rule/Filter]
disable=0
filter=libflt_level2
filter2path= /usr/lib/vbuster/filters/
; ---- end of level2 filter module initialization

[Milter/Filterrules/Rule/Filter/Level2]
disable=0
filter2=libflt2_virus

filemask=*.exe,*.com,*.ov?,*.sys,*.386,*.bin,*.dll,*.drv,*.ocx,*.prg
search_method=strict
heuristic_level=normal
macro_delete=no
containers=yes

[Milter/Filterrules/Rule/Filter/Level2/Action]
result="infe.*"
command="modify_header ('Subject','%virusname%')"
command2= \
"replace('*.txt','iso-8859-2',
'************************************************************
**  Attachment %filename% was infected with %virusname% virus,
**  attachment part was removed.
************************************************************')"

[Milter/Filterrules/Rule/Filter/Level2/Action]
result=cleaned
command="continue"

[Milter/Filterrules/Rule/Filter/Level2/Action]
result=i-worm
command="drop_mail"
```

The above configuration part is a possible example of the virus filter module setting. Because the virus filter module is level2 module, first the level2 manager module (libflt_level2) and the location of the level2 modules ('filter2path') must be defined. This is the initialization method of the level2 modules.

You have to specify and set the requested level2 module in the [Milter/Filterrules/Rule/Filter/Level2] section.

filter2 = <level2 filter module type>
Set the requested filter module, in the present case this is the virus filter module (libflt2_virus).

filemask =
Please specify attachment names and mask that you would like to be scanned by the filter module. These must be separated by commas (,). If you specify the star (*) character, then all the files will be scanned.

search_method = <fast/strict/full>
Specify the search method. The virus scanning engine is able to scan for and detect viruses according to the set methods/levels. It is possible to choose the needed scanning method in the components in the software. The following levels are available:
fast:

Only scans those parts of the file, which are most likely to contain a virus and does not detect viruses, which can only be detected by using a major amount of system resources (e.g. Excel FORMULA viruses).
extensive:
Optimized scanning method, which detects all viruses registered in the virus database and scans those parts of the file, which are most likely to contain a virus.
full:
Detects all viruses registered in the virus database and scans the whole file, even those parts, where viruses are not likely to be found.

heuristic_level = <off/normal/high>
During the heuristic analysis, the software tries to detect codes and programs, which have virus-like characteristics but are not registered in the virus database. If such a suspicious file is found, the user is notified. The following levels of heuristic analysis are available:
off:
No heuristic analysis.
normal:
The depth of the analysis is limited, the possibility of false positives is low, but the chance of detecting unknown viruses is not too high.
high:
The chance of detecting unknown viruses is higher, but there is a higher possibility of false positives.

macro_delete = <yes/no>
yes: all the macros will be deleted.
no: inactive.

containers = <yes/no>
Scanning in compressed files.
yes: scanning in container files (archives, compressed files). The anti-virus system recognizes the compressed, archived files automatically.

Returned results, actions

Available return values of the virus filter module:

none: there was no virus found
i-worm: infected file, I-Worm type incident
cleaned: infected file, virus successfully killed
infected: infected file, fail to kill virus
encrypted_archive: compressed file protected by password
archive_exploit: too big archive (exploit)
archive_depth_limit: if the limit of the 'max_decompress_depth' option exceeded
error: error occurred during processing

These values are available to use as the value of the 'result' option.
Commands could be used in the 'command' option are detailed in the "Module commands" chapter.

In the example

1.
result="(infected|i-worm)"
The result value is specified as a regular expression. If the filter module returns a string either 'infected' or 'i-worm' then the specified action will be performed.
In this example the command is header modification: the program inserts the name of the virus into the subject field.
Because this result has a secondary command (command2) so it also will be performed: The infected attachment will be replaced to the warning text file.

2.
result=cleaned
If the attachment was infected, but the virus was killed successfully, then the command to be performed is the 'continue', the mail will be forwarded to the MTA to deliver.

3.
result=i-worm
If the virus filter recognizes the mail as Internet worm, then the drop_mail action will be allied to the mail, the mail will not be delivered.

File filter module settings (level2)

```
[Milter/Filterrules/Rule/Filter/Level2]
disable=0
filter2=libflt2_fileflt

filemask=*.pif, *.scr, *.vbs
use-regex=no

[Milter/Filterrules/Rule/Filter/Level2/Action]
result=true
command="delete"
```

Initialization of level2 modules has been described in the virus filter section. Initialization must be done only once so if it has been initialized in the virus filter (or rather in the first module specification in the configuration file) you don’t need to do it again.

filter2 = <level2 filter module>
Set the requested filter module, in the present case this is the file filter module (libflt2_fileflt).

filemask =
You can specify as filemask as you wish by using the * and ? characters. If one of the fillemask matches the attachment files, the specified command will be applied to the file. The file mask values must be separated by commas (,).

Returned results, actions

Return values of the file filter module:

true: the name of the file (attachment) matched one of the values of the 'filemask' option
false: the name of the attachment) didn’t match the values of the 'filemask' option
error: error occurred during processing

In the example

result=true
If one of the values of the 'filemask' option matches the name of the file, the program will delete the attachment according to the command option’s value.

Spam filter module settings (level2)

```
[Milter/Filterrules/Rule/Filter/Level2]
disable=0
filter2=libflt2_bayes

filter_level=high

;actions for each spam level
[Milter/Filterrules/Rule/Filter/Level2/Action]
result=low_level_spam
command="drop_mail"

[Milter/Filterrules/Rule/Filter/Level2/Action]
result=normal_level_spam
command="reject_mail('550','Recognized as SPAM')"
command2="set_rcpt_to ('admin@domain.com')"

[Milter/Filterrules/Rule/Filter/Level2/Action]
result=high_level_spam
command="modify_header ('Subject','***SPAM*** %subject%')"

;common spam filter action for spams
;[Milter/Filterrules/Rule/Filter/Level2/Action]
;result=true
;command="modify_header ('Subject','***SPAM*** %subject%')"
```

Initialization of level2 modules has been described in the virus filter section. Initialization must be done only once so if it has been initialized in the virus filter (or rather in the first module specification in the configuration file) you don’t need to do it again.

The spam filter returns the 'true' or 'false' result to indicate the mail is spam ('true') or not ('false'). In case of spam it also returns the level of the spam. Set your security spam level in the 'filter_level' option and...
...use the 'true' result in the rule if you don't want to set different actions for the spam according to its spam level (common action).
...use the name of the security levels in the rules to assign different actions for the spam according to its spam level.

filter2 = <level2 filter module>
Set the requested filter module, in the present case this is the spam filter module (libflt2_bayes).

filter_level = <low/normal/high>
Filter level setting. The filter marks the mail as spam which is found on the specified spam level or below.
low:
Insignificant false positives, the spam detection rate is normal. This means that the spam filter only marks that mails which are real spam by the spam database, normal mails are not affected (low false positives).
normal:
The false positive index increases a bit compared to 'low' level. This level provides effective spam recognition. This is the optimal level.
high:
The number of false positives increases but the filter filters out almost all the spam mails on this level. This setting is recommended if mails marked as spam can be reviewed because of the relatively high number of false positives.

If the mail is marked as spam on the selected level, the specified action will be performed. Different levels should have another actions. The following actions are recommended for the levels:
low: drop_mail
normal: reject_mail, set_rcpt_to
high: modify_header

Returned results, actions

Return values of the spam filter module:

true: the spam filter marked the mail as spam based on the specified setting
false: the mail is not spam according to the spam filter

If the result is 'true', the spam levels also be returned (explanation read above):
low_level_spam
normal_level_spam
high_level_spam

Other possible result:
error: error occurred during processing

In the example

Assign different actions for spam mails:

result=low_level_spam
The mail is surely spam, the program simply does not forward the mail.

result=normal_level_spam
The mails is spam most likely, so the program rejects the mail 'command1' and sends a copy to the address specified in the 'command2' command.

result=high_level_spam
Because of the increase number of false positives, the program only modifies the subject field of the mail and forwards the mail back to the MTA.

Common action for spams:

result=true
If the mail is marked as spam on the high level, the program modifies the subject field of the mail and forwards it back to the MTA.

ZH/ESP filter settings (level1)

```
[Milter/Filterrules/Rule/Filter]
disable=0
filter=libflt_asap

ip=127.0.0.1
port=9999
timeout=5000
virus_level=high
;spam_level=confirmed
retry=5
ip_information=ip-ignore-list
ip_ignore_list=127.0.0.1/8, 10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16
received-num=3

[Milter/Filterrules/Rule/Filter/Action]
result=virus_true
command="drop_mail"
command2="set_rcpt_to ('vod@vlab.virusbuster.hu')"
```

Filter settings:

disable = <0|1>
Disable or enable filter. Possible values: 0 or 1.
1: Filter is disabled its settings will not be performed.
0: Filter is active.

filter = <filter type>
Sets libflt_asap filter type.

ip = <ip address>
IP address of the computer that executes vbasapd. (default: 127.0.0.1)

port = nnn
If vbasapd can not be found on the standard port, it sets the used one for the VBMSRV. (default: 9999)

timeout = nnn
VBMSRV is waiting for the answer of vbasapd until specified time interval expires (msec). (default: 1000)

virus_level = <HIGH/MEDIUM/UNKNOWN/NONE>
Sets virus sensitivity level. If the filter returns the selected level (or above) the mail will considered as infected mail (virus_true).
Explanation of the levels:
- HIGH: High likelihood of the message presenting a virus threat.
- MEDIUM: Probable threat of virus in the message has been detected.
- UNKNOWN: Threat for virus could not be determined at this time.
- NONE: Confirmed that message does not contain a virus.

spam_level = <CONFIRMED/BULK/SUSPECT/UNKNOWN/NONE>
Sets spam sensitivity level. Mail will be considered as spam if its returned category is equal (or above) to the selected level (spam_true).
Explanation of the levels:
- CONFIRMED: Spam messages from known spam sources (e.g. zombies).
- BULK: Spam messages from sources that are not confirmed spammers.
- SUSPECT: Messages that are sent to slightly larger than the average distribution or unidentified spam messages at the beginning of a massive spam outbreak.
- UNKNOWN: No information is available for that mail.
- NONE: Messages that are confirmed, without doubt, as coming from a trusted source.

retry = <N>
Number of reconnection attempts in case of communication error.
Default: 3

ip_information=real-ip/ip-ignore-list/received-header
Source of the IP address forwarded to the Commtouch server. The sent IP address also affects the result of ZH/ESP filter.
real-ip
It will use the IP address of the mailer client connected to the MTA.
ip-ignore-list
It will check the IP addresses put into the received field from the latest entry. If the IP address found in the field matches one of the 'ip_ignore_list' values, it will be ignored, the following will be checked and the first allowed will be used. If it could not find allowed IP address, the 'real-ip' will be used.
received-header
The IP address will be determined based on the 'received-num' option. If it could not find valid IP address, the 'real-ip' will be used.

ip_ignore_list=127.0.0.1/8, 10.0.0.0/8, 172.16.0.0/12, 192.168.0.0/16
List of IPs, IP masks that must be ignored. Use comma (,) to separate values.

received-num=3
Checks the IP addresses put into the received field from the latest entry. The set value is an ordinal number, which IP address will be considered. This option is useful in case of sequenced mail servers to determine the mail's original IP address.

Returned results, actions

Available return values of the additional spam filter module:

virus_true: virus found*
virus_false: virus not found*
spam_true: spam found*
spam_false: spam not found*
(*)based on the settings

The filter also returns the level which the mail was found on:

virus_<level>: virus filter (ZH) result, returned by the Commtouch server. The value of the <level> can be: HIGH/MEDIUM/UNKNOWN/NONE
Example: virus_high

spam_<level>: spam filter (ESP) result, returned by the Commtouch server. The value of the <level> can be: CONFIRMED/BULK/SUSPECT/UNKNOWN/NONE
Example: spam_confirmed

These values are available to use as the value of the 'result' option.

In the example

result=virus_true
If the ZH filter found the mail infected (virus_true), the program performs the drop_mail command ('command' option), then forwards the current mail to the specified e-mail address based on the 'command2' command.

Module commands

Commands belong to level1 modules

continue
The mail processing may continue.

accept_mail
The mail will not be scanned, it will be accepted without checking.

reject_mail
The processing (filtering) may not continue. The mail will be rejected without scanning and the error codes and messages will be returned to the mailing client.
Parameters: error code, error message.
Only 5xx type error codes accepted!
Important!
Using Q-mail mailing system, the given parameters will not be returned because the Q-mail will overwrite them with its own error code and message!

drop_mail
The mail processing may not continue, the mail will be accepted but will not be forwarded.

copy_mail
If one of the modules break the mail processing then the program will copy the whole mail named as 'mailXXXXXX' where the XXXXXX is a random generated number. Parameter: target directory.

set_rcpt_to
A copy of the mail will be sent to the recipient specified in the parameter.
Parameter: e-mail address

modify_header
Modify the mail's header. If the specified filed could not be found in the header, then it will be inserted. Parameters: field name, value.

add_header
Insert the specified filed to the mail's header. Parameters: filed name, value.

execute_command
Execute external command. Parameters: name of the program to be executed (with path), possible command line switches. The anti-virus systems' tokens can be used in the command line.

Commands belong to level2 modules

All the commands belonging to the level1 modules are available completed with the following:

delete
Delete attachment.

replace
Replace attachment to text file. Parameters: file extension, char set, text.

modify
Modification is allowed. (For example the virus filter module is killed the virus)

copy

Makes a copy of the original file. The file will be named as ’mailXXXXXX’ where the XXXXXX is a random generated number. Parameter: target directory.

VBMLOG daemon configuration file (vbmlog.conf)

The LOG component is responsible for storing and handling the log messages came from other modules of anti-virus system. The modules could send messages to the LOG daemon with the help of netcmd.

General settings

```
[General]
netcmdaddr=unix:/var/run/vbuster/vbmlog
pid_file=/var/run/vbuster/vbmlog.pid
run-as-user=user
run-as-group=group
```

The settings:

netcmdaddr = <netcmd address>
You have to specify the communication address of VBMLOG component.
Default: netcmdaddr=unix:/var/run/vbuster/vbmlog

pid_file= <pid file>
Pid file with path of vbmlog.

run-as-user=user
run-as-group=group
VBMLOG daemon starts with root permission as all the daemon programs usually at the computer startup. However, it is more secure to run with unprivileged user permission. If the VBMLOG is started with root permission, it is able to change to the user and group specified in these options.
If the VBMLOG is not started with root permission, it will not be able to change to other user permissions.

Log output settings

```
[OutputSetting]
[OutputSetting/Output]
type=file
filename=/var/log/vbuster/vbmsrv.log ;if type=file
perpid=0                             ;if type=file
facility=                            ;if type=syslog
ident=                               ;if type=syslog
format="[%d/%m/%Y %H:%M:%S %z] $k $l $A $C PID:$P TID:$T \"$M\""
```

There can be only one [OutputSetting] section specified in the vbmlog.conf file. The output sub-sections could be defined inside this section.
You can set the log's general setting in the [OutputSetting/Output] section. The number of [OutputSetting/Output] sections is not restricted. Each of these sections have different rules. Rules determine which messages occurred in the system should be logged. The VBMLOG daemon processes the [OutputSetting/Output] sections and if the new log message's type matches one of the rule, it registers the log according to the settings of the specific output section.

type = <file|syslog|stdout>
Specify the type of the log file of the specific log section.
file: the log messages will be registered into a simple text file
syslog: the entries will be registered into syslog
stdout: the log will be written to the standard output

filename = <log file name>
If you would like the program to make log file (type=file), you can set the name of the file. Default: /var/log/vbuster/vbuster.log

perpid = <0|1>
This function available if type=file is set:
1: in case of making log file the program will insert the PID into the name of the log file
0: inactive

facility =
This function available if type=syslog is set:
In this option you can define which type of log messages will be considered. A type belongs to all the entries, it makes the search easier in the log file. You can specify several types separated by comma, or the ALL keyword.
For example: MAIL, USER
The following types are available:
KERN, USER, MAIL, DAEMON, AUTH, SYSLOG, LPR, NEWS, UUPC, CRON, AUTHPRIV, FTP

ident = <identifier>
This function available if type=syslog is set:
Identifier which will be placed before the log record. Default: vbuster

format =
Specification of the log file's structure. The following tokens are available:
Building the date:
%d - day
%m - month
%Y - year
%H - hour
%M - minute
%S – second
%z – time zone
Other:
$a/$A – computer name (hostname)
$c/$C – component name (which created the record)
$k/$K - facility ($k returns counter, $K returns name)
$l/$L - log priority (Level) ($l returns counter, $L returns name)
$m/$M – log message
$n/$N – new line character
$p/$P - PID
$t/$T - TID
$$ - insert $ character
Default: [%d/%m/%Y %H:%M:%S %z] $k $l $A $C PID:$P TID:$T \"$M\"

Output rules

```
[OutputSetting/Output/RuleSetting]
[OutputSetting/Output/RuleSetting/Rule]
components=ALL
priority=DEBUG3
facility=ALL
-----------------------------------------------
```

The rules should be inserted in a new section inside the [OutputSetting/Output] section. There is a main rule section [OutputSetting/Output/RuleSetting] and inside this section you can create several rules in the [OutputSetting/Output/RuleSetting/Rule] section.

components = <component names separated by comma or ALL>

This section will log those messages which created by the specified component(s). You can enumerate different components, these must be separated by comma. The ALL keyword means all the components.
Available component(s): vbmsrv

priority = <keywords or 0..10>
Log level. Only those messages will be registered which have the equal or lower level to the specified level.
Available values:

EMERG	0	system is unusable
ALERT	1	action must be taken immediately
CRITICAL	2	critical conditions
ERROR	3	error conditions
WARNING	4	warning conditions
NOTICE	5	normal, but significant, condition
INFO	6	informational message
DEBUG0	7	debug-level message
DEBUG1	8	debug-level message
DEBUG2	9	debug-level message
DEBUG3	10	debug-level message

facility = <0..4 or keywords or ALL>
In this option you can define which type of log messages will be considered. A type belongs to all the entries, it makes the search easier in the log file. You can specify several types separated by comma, or the ALL keyword.
For example: VIRUS, SPAM
The following types are available:

ALL	0	All kind of message types
SYSTEM	1	System log message
VIRUS	2	Virus found log message
SPAM	3	Spam found log message
DEBUG	4	Debug log message

In the example

According the rule the program will register the logs messages come from one of the components and the log type is not important either. The DEBUG3 or higher level log messages will be registered.

Example 2:

```
[OutputSetting/Output/RuleSetting/Rule]
components=vbmsrv
priority=INFO
facility=SPAM VIRUS
```

In this case only those log messages will be logged which come from the vbmsrv component in case of spam- or virus found (facility=SPAM VIRUS) being on INFO or higher log level (priority=INFO).

Tokens

Tokens available in the system:

%productversion%	program's version number
%from%	from field of the mail
%to%	to field of the mail
%mailid%	value of the mail's 'message-id' field if it exists.
%vdbversion%	virus database version
%sdbversion%	spam database version

```
%subject%     content of 'subject' field
%virusname%   name of found virus
%filename%    current attachment's name
%sender%      e-mail address of the sender
%realip%      address of the e-mail client which connected to the MTA
%recipient%   e-mail address of the recipient
%mailfilename% file name and path of the copy of the original e-mail created by the
antivirus system

ZH/ESP filter tokens:

%zhfilter%     return value of ZH filter.
%espfilter%    return value of ESP filter.
%asaprefid%    reference string resulted by ZH/ESP filter
```

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CONTACT

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